



The Informed Arizona Equestrian HORSE HEALTH SERIES

Rabies In Arizona: Equine Risk And Prevention

Ashley D. Wright and Elizabeth A. Greene

Significance

There is no good outcome for a horse or any other animal that contracts rabies; the disease is always fatal. While household pets are routinely vaccinated for rabies, many horse owners don't consider the risk to their outdoor equine partners, nor the risk of transmission to themselves or their family. Rabies is not commonly found in horses in the United States (about forty cases per year across the country), but the potential risk of human exposure from even one infected horse is significant. The nonspecific early signs of infection can delay correct diagnosis and potentially expose handlers, caretakers, owners, veterinarians, veterinary technicians, and anyone else who handles the animal. Dr. Ann E. Dwyer, DVM reported that in one case of equine rabies she worked on more than 20 people involved with the horse required post exposure treatment. Even though the chance of your horse contracting rabies is small, the implications of a rabies infection that occurs in your barn are significant.

Transmission

Rabies is a **zoonotic** disease caused by a **neurotropic** *lyssavirus* (family *rabdoviridae*). It is transmitted in saliva and often introduced through the bite of an infected animal. The virus enters the nervous system and travels to the brain causing clinical disease and eventually death. It is possible, although unusual, to be infected through saliva contact with existing skin wounds or mucous membranes (eyes, mouth, etc).

It is not uncommon for the rabies virus to be found in wildlife populations. Bats, skunks, and foxes are the most likely species to test positive for rabies in Arizona (Figure 1). However, it is occasionally found in bobcats, coyotes,

A **zoonotic** disease is a disease can be passed between animals and humans. For example, a rabid dog can transmit rabies to a human through a bite wound.

A **neurotropic** virus is one that preferentially attacks or affects the nervous system.

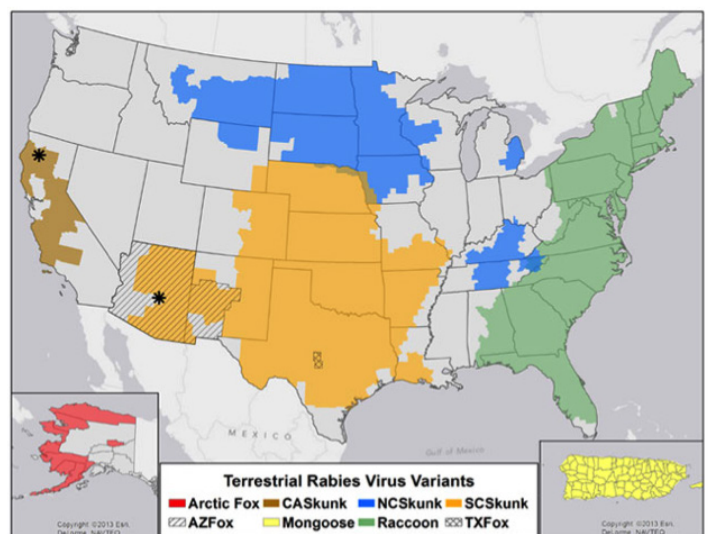


Figure 1 – Predominant terrestrial rabies reservoirs throughout the United States. Note that Arizona has two primary species variants (AZ Fox and SC Skunk) acting as hosts for the disease. Image Source: CDC 2013

Rabies Positive Animals in Arizona, 2015 (n=120)

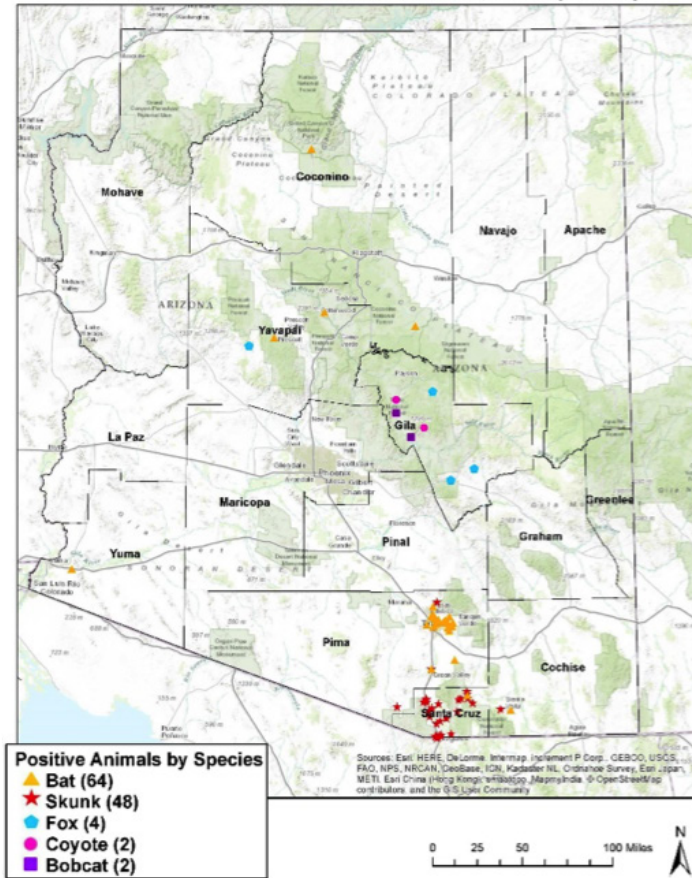


Figure 2 - Image Source: Arizona Department of Health Services 2015 Map Data

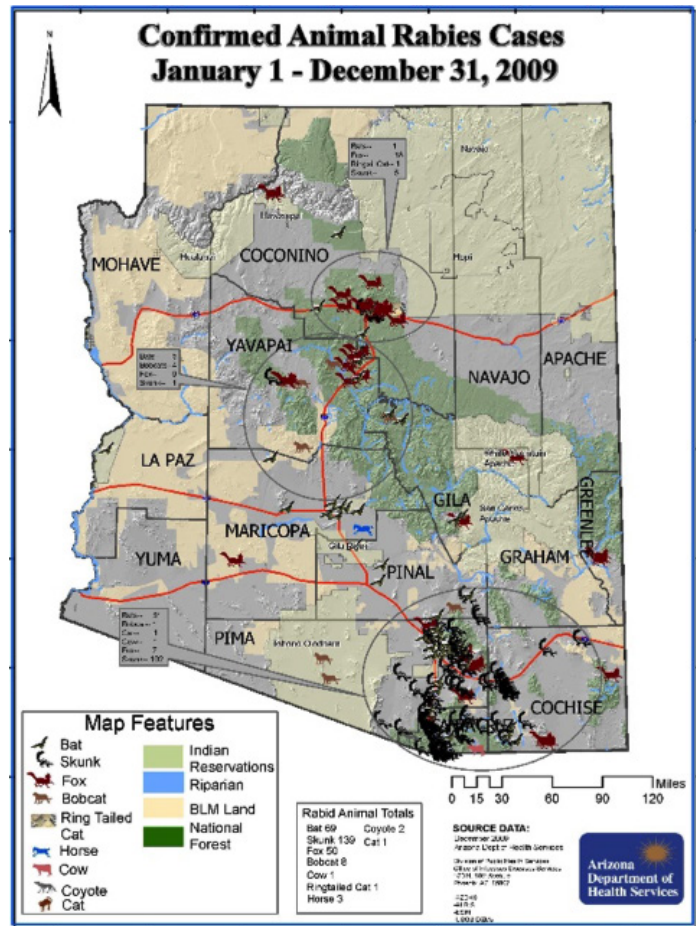


Figure 3 - Image Source: Arizona Department of Health Services 2009 Map Data

mountain lions, and coatimundis. These populations act as a reservoir for the disease and are typically the source of infection for domestic pets and livestock.

Horses in Arizona are commonly housed outside in corrals or large pastures, this gives them more potential contact with wildlife populations and increases the risk of exposure. Data from the Arizona Department of Health Services indicates that 120 wild animals tested positive for rabies across the state in 2015 (Figure 2). From January through April of 2016 there have been 43 total cases of rabies positive wildlife (34 skunks) in Arizona. Thirty eight of those were located in Cochise, Santa Cruz, and Pima counties. The AZDHS 2009 map data (Figure 3) exemplifies an extremely active year and demonstrates that most cases of rabies-positive wildlife in Arizona occur in two main pockets: the region around western Cochise county, Santa Cruz county, and eastern Pima county, as well as the area around northeast Yavapai and southern Coconino counties including Flagstaff.

Signs

Most often, animals will show signs of rabies infection two to nine weeks after exposure, although it is possible for there to be no apparent signs for up to six months after exposure.

Confirmation of diagnosis can only be made post-mortem. The direct fluorescent antibody test (dFA) to stain and visualize the rabies antigen is the current standard for diagnosis. Additionally, a histologic examination of brain tissue for evidence of Negri bodies and other diagnostic markers may be used.

Early signs of rabies in horses are nonspecific and can be easy to overlook as mild colic or lameness. Even the advanced signs in horses can be similar to more common diseases such as Eastern or Western Equine Encephalitis, West Nile Virus, or Equine Protozoal Myeloencephalitis. There is no ante-mortem diagnostic test for rabies. If other neurological diseases have been ruled out and the horse has an unknown vaccination status and/or suspected exposure to a rabid animal, rabies should be considered as a possibility. Infection can only be confirmed post-mortem. This situation can make an accurate diagnosis difficult as the sick horse undergoes testing and treatment for other common neurological diseases. By the time the suspected diagnoses of a rabies infection is reached, a surprising number of individuals have been potentially

exposed. Any suspected human exposure should be seen immediately by a physician for post-exposure rabies treatment protocol.

If you suspect that you may have been exposed to rabies, you should immediately contact your physician. Post-exposure rabies prevention protocol consists of a series of four shots over three weeks. Once symptoms of infection appear, treatments will be ineffective and the disease is almost always fatal.

Early signs

- Depression
- Decreased appetite (anorexia)
- Incoordination (ataxia)
- Unexplained lameness
- Colic-like symptoms

Advanced signs

- Facial paralysis
- Drooling and excessive salivation
- Inability to swallow
- Jaw clenching
- Repetitive twitching
- Hypersensitivity to touch
- Over-reaching movements (hypermetria and dysmetria)
- Lack of physical awareness of limbs
- Limb weakness
- Super libido in stallions
- Localized itchiness
- Extremely aggressive behavior in a normally docile animal
- Self-mutilation

Use caution handling any unknown horse exhibiting strange behavior, especially if you don't know its vaccination status. Most people know to avoid strange acting or sick wildlife, but will jump to the aid of any horse, regardless of the situation.

Furious vs. Paralytic rabies

Most people think of the typical “mad dog” syndrome when they think of a rabies infected animal, but the disease can take many forms. Animals with furious rabies display more aggressive symptoms of the disease. They become agitated and irritable, wild animals may lose their fear of people, and species that are normally nocturnal may be seen out during daylight hours. Self-inflicted wounds may be

seen, and even normally gentle animals may begin charging or attacking handlers. Horses and cattle with furious rabies can be especially dangerous because of their size and typically docile nature. Beyond exposure concerns, these animals may lash out and cause extreme injury or death. Paralytic (also called dumb or stuporous) rabies is mainly marked by progressive paralysis. The animal may become depressed, but there are few other behavioral changes. Ataxia, inability to swallow, and excessive drooling may be noted initially, followed by paralysis which leads to coma and death. Once clinical symptoms become apparent in the animal, death occurs in 3-10 days.

One sign of rabies in large livestock such as cattle or horses can be abnormal bellowing, as depicted in the 1958 movie *Old Yeller*.

Prevention

There is no treatment for a rabid animal, therefore prevention is the best course of action. There are several vaccines available to prevent rabies infection in horses; all of them have high efficacy and a low risk of side effects. The American Association of Equine Practitioners (AAEP) recommends annual vaccination for all horses as follows: All adult horses should be vaccinated once per year. In addition, pregnant mares should receive a booster vaccination 4-6 weeks prior to foaling to ensure she will pass antibodies on to her foal. Vaccination at breeding is also acceptable, although prior to foaling is preferred. Foals of unvaccinated mares should receive their first vaccine at 3-4 months of age followed by annual revaccination; foals of vaccinated mares should receive their first vaccine at 6 months of age with a booster 4-6 weeks later followed by annual revaccination. Arizona is one of several states that allows the purchase of the rabies vaccine without a veterinary prescription, but you should always consult your veterinarian prior to taking responsibility for your own vaccination programs.

“Extra Label” or “Off Label” means the use of any non-feed medication in a manner that is not specifically approved on the label. Extra label use requires veterinary oversight and may include different:

- species
- dosage
- length of treatment
- route of administration

or for a disease or condition that is not listed on the label.

Rabies in other livestock

Since many Arizona horse owners have other livestock on their property, it is important to know that there is no vaccine available specifically for goats, pigs, llamas, or alpacas. **Extra label** use of a product for another species is allowed but only under veterinary supervision. Vaccinations are available for sheep and cattle, but most large livestock operations do not vaccinate given the high cost and low risk of human exposure. Livestock that are especially valuable or are routinely handled should be considered for vaccination.

In addition to vaccinating your animals, you should take steps to deter wildlife from frequenting areas around your property. Skunks and raccoons are particularly drawn to dog or cat food left in accessible areas. Remove other attractants such as garbage and any potential nesting places including openings under a house or building. In April 2016, a rabies positive skunk was found wandering around a populated shopping center in Oro Valley in the middle of the day. This highlights the necessity of being alert for wildlife that may be acting strangely, such as normally nocturnal animals out during the day or animals acting more aggressive than normal. The threat of rabies exposure can be significantly reduced for you and your horses with solid animal and facilities management practices.

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If you see a suspicious animal, you can contact Arizona Game and Fish Department at (602) 942-3000 or www.azgfd.com.

If you suspect livestock/equine infection, contact the Arizona State Veterinarian at (602) 542-4293 or www.azda.gov/ASD/statevet.aspx.



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Cooperative
Extension

THE UNIVERSITY OF ARIZONA
COLLEGE OF AGRICULTURE AND LIFE SCIENCES
TUCSON, ARIZONA 85721

ASHLEY D. WRIGHT
Area Assistant Agent, Livestock

ELIZABETH A. GREENE, PhD
Professor and Extension Specialist, Equine

CONTACT :
ASHLEY D. WRIGHT
awright134@email.arizona.edu

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